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UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF MONTANA  
BUTTE DIVISION

CENTER FOR BIOLOGICAL  
DIVERSITY; WESTERN  
WATERSHEDS PROJECT; GEORGE  
WUERTHNER; and PAT MUNDAY,

Plaintiffs,

v.

SALLY JEWELL, Secretary, U.S.  
Department of the Interior, in her  
official capacity; DAN ASHE, Director,  
U.S. Fish and Wildlife Service, in his  
official capacity; and UNITED STATES  
FISH AND WILDLIFE SERVICE,

Defendants.

Case No. 2:15-cv-00004-BU-SEH

**PLAINTIFFS' MEMORANDUM  
IN SUPPORT OF MOTION FOR  
SUMMARY JUDGMENT**

## TABLE OF CONTENTS

TABLE OF AUTHORITIES .....	iii
INTRODUCTION .....	1
BACKGROUND .....	2
I.    THE ENDANGERED SPECIES ACT .....	2
II.   ARCTIC GRAYLING.....	2
ARGUMENT .....	5
I.    STANDARD OF REVIEW.....	5
II.   FWS FAILED TO RATIONALLY EVALUATE WHETHER ARCTIC GRAYLING ARE THREATENED BY LOW STREAM FLOWS AND HIGH STREAM TEMPERATURES .....	6
A.    FWS Arbitrarily Dismissed the Inadequacy of Regulatory Mechanisms to Counter the Threat of Low Stream Flows and High Stream Temperatures.....	7
B.    FWS Arbitrarily Concluded That Arctic Grayling Are Not at Risk from Low Stream Flows and High Temperatures .....	9
1.    The CCAA Does Not Ensure Adequate Grayling Habitat .....	10
2.    FWS Arbitrarily Evaluated Climate-Change Impacts .....	13
III.  FWS ARBITRARILY CONCLUDED THAT ARCTIC GRAYLING ARE NOT THREATENED BY SMALL POPULATION SIZE.....	16
A.    FWS's 2014 Population Findings Were Arbitrary.....	16
B.    FWS Irrationally Concluded that Low Population Numbers Are Not a Threat.....	19
1.    FWS Failed to Consider the Impact of Low Population Numbers on Long-Term Genetic Viability.....	19

2.	FWS Irrationally Concluded That Environmental Disturbances Will Not Threaten Grayling, Despite Their Small Population Size .....	21
3.	FWS Irrationally Reversed its 2010 Population Viability Analysis.....	24
IV.	FWS FAILED TO EVALUATE WHETHER THE ARCTIC GRAYLING IS IMPERILED IN A SIGNIFICANT PORTION OF ITS RANGE.....	25

## TABLE OF AUTHORITIES

### FEDERAL CASES

<u>Ariz. Cattle Growers' Ass'n v. Salazar</u> , 606 F.3d 1160 (9th Cir. 2010) .....	5
<u>Chevron U.S.A. Inc. v. Nat. Res. Def. Council</u> , 467 U.S. 837 (1984).....	27
<u>Conner v. Burford</u> , 848 F.2d 1441 (9th Cir.1988) .....	17
<u>Consol. Delta Smelt Cases</u> , 717 F. Supp. 2d 1021 (E.D. Cal. 2010) .....	5
<u>Ctr. for Biological Diversity v. Morgenweck</u> , 351 F. Supp. 2d 1137 (D. Colo. 2004).....	8
<u>Defenders of Wildlife v. Hall</u> , 565 F. Supp. 2d 1160 (D. Mont. 2008).....	23
<u>Defenders of Wildlife v. Jewell</u> , 68 F. Supp. 3d 193 (D.D.C. 2014).....	8
<u>Defenders of Wildlife v. Norton</u> , 258 F.3d 1136 (9th Cir. 2001) .....	26,27,27-28
<u>F.C.C. v. Fox Television Stations, Inc.</u> , 556 U.S. 502 (2009).....	<i>passim</i>
<u>Greater Yellowstone Coal. v. Servheen</u> , 665 F.3d 1015 (9th Cir. 2011) .....	15,21,23
<u>Or. Nat. Res. Council v. Daley</u> , 6 F. Supp. 2d 1139 (D. Or. 1998) .....	8
<u>Or. Nat. Res. Council v. Allen</u> , 476 F.3d 1031 (9th Cir. 2007) .....	5
<u>San Luis &amp; Delta-Mendota Water Auth. v. Locke</u> , 776 F.3d 971 (9th Cir. 2014) .....	17-18

Tucson Herpetological Soc'y v. Salazar,  
 566 F.3d 870 (9th Cir. 2009) ..... 12,25-26,26

Util. Air Regulatory Grp. v. E.P.A.,  
 134 S. Ct. 2427 (2014) ..... 27

### **STATUTES AND LEGISLATIVE MATERIALS**

5 U.S.C. § 706.....	5
16 U.S.C. § 1531 <u>et seq.</u> .....	1
§ 1531(b) .....	2,28
§ 1532(6) .....	23,25,27,29
§ 1532(20) .....	23,25,29
§ 1532(16) .....	2
§ 1533(a)(1).....	2
§ 1533(a)(1)(D) .....	7
§ 1533(a)(1)(E) .....	25
§ 1533(b)(1)(A) .....	2,16,19,25
§ 1533(c)(1).....	28
§ 1540(g) .....	5
H.R. Rep. 95-1625 (1978), <u>reprinted in</u> 1978 U.S.C.C.A.N. 9,453 .....	28

### **REGULATIONS AND ADMINISTRATIVE MATERIALS**

68 Fed. Reg. 15,100 (Mar. 28, 2003).....	9
75 Fed. Reg. 54,708 (Sept. 8, 2010) .....	<i>passim</i>
79 Fed. Reg. 37,578 (July 1, 2014).....	26-27,27
79 Fed. Reg. 49,384 (Aug. 20, 2014).....	<i>passim</i>

## INTRODUCTION

This case challenges the United States Fish and Wildlife Service’s (“FWS”) August 2014 decision not to list the distinct population segment (“DPS”) of Arctic grayling in the upper Missouri River Basin as a threatened or endangered species under the Endangered Species Act (“ESA”), 16 U.S.C. § 1531 *et seq.* Revised 12-Month Finding on a Petition to List the Upper Missouri River DPS of Arctic Grayling as Endangered or Threatened, 79 Fed. Reg. 49,384 (Aug. 20, 2014) (“2014 Finding”). The upper Missouri River basin population of Arctic grayling has lost nearly all its historic habitat and surviving Arctic grayling face a barrage of threats, including low instream flows, rising water temperatures, and a very low population. These threats are worsened by the current and predicted impacts of a warming climate, which are expected to further reduce water flows and raise water temperatures.

Because of these threats, FWS determined in 2010 that ESA protection was necessary to ensure that Arctic grayling did not go extinct in the lower-48 states. See Revised 12-Month Finding To List the Upper Missouri River Distinct Population Segment of Arctic Grayling as Endangered or Threatened, 75 Fed. Reg. 54,708 (Sept. 8, 2010) (“2010 Finding”). In its 2014 Finding, FWS arbitrarily reversed that prior determination without providing any reasoned basis for dismissing significant threats to Arctic grayling survival. Accordingly, Plaintiffs

Center for Biological Diversity, et al., request that this Court set aside the 2014 Finding and remand the issue to FWS for a rational determination regarding the need to protect Arctic grayling under the ESA.

## **BACKGROUND**

### **I. THE ENDANGERED SPECIES ACT**

The ESA seeks to safeguard our nation’s natural heritage by conserving imperiled species and their habitat. See 16 U.S.C. § 1531(b). To be protected under the ESA, a “species”—which by definition includes any distinct population segment of vertebrate fish, id. § 1532(16)—must first be listed as endangered or threatened. FWS must base its listing determinations on “the best scientific and commercial data available” as it relates to the following five factors: “(a) the present or threatened destruction, modification, or curtailment of its habitat or range; (b) overutilization for commercial, recreational, scientific, or educational purposes; (c) disease or predation; (d) the inadequacy of existing regulatory mechanisms; or (e) other natural or manmade factors affecting its continued existence.” Id. § 1533(a)(1), (b)(1)(A).

### **II. ARCTIC GRAYLING**

The Arctic grayling is a member of the family Salmonidae. 79 Fed. Reg. at 49,385. Arctic grayling have long, trout-like bodies with deeply forked tails and a sail-like dorsal fin. Id. They are cold-water fish that subsist in low-to-moderate gradient streams and rivers with ample pool habitat and quality riparian areas. Id.

at 49,391, 49,402. Cool water, maintained by intact riparian areas and sufficient stream flows, is essential to their health. Id. at 49,402-03.

In the coterminous United States, Arctic grayling persist only in the upper Missouri River basin. Arctic grayling have two general life-history forms: Fluvial (river or stream-dwelling) and adfluvial (lake-dwelling). Id. at 49,391. Historically the fluvial form predominated in the upper Missouri River basin with only a few native adfluvial populations. Id. at 49,391-92. The two forms are not interchangeable. Unlike fluvial grayling, adfluvial grayling cannot hold their position in flowing water. Id. at 49,392. FWS has recognized the importance of conserving both life-history forms to ensure species survival. Id. at 49,419.

Grayling were once abundant in all of the major rivers of the upper Missouri basin, including the Missouri mainstem, Smith, Sun, Jefferson, Madison, Gallatin, Big Hole, Beaverhead, and Red Rock Rivers and their tributaries, along with adfluvial populations in a small number of lakes, including Red Rock Lakes in the Centennial Valley and Elk Lake. Id. at 49,386-87. The distribution of native grayling, especially fluvial populations, dramatically declined in the 1900s. See id. at 49,387-88.

Today, there are just six remaining native subpopulations of grayling in the upper Missouri River basin: Big Hole River, Ennis Reservoir/Madison River, Centennial Valley, Mussigbrod Lake, Miner Lake, and Ruby River. Id. at 49,398.

Only two of these are entirely fluvial: the Big Hole River population and the reintroduced Ruby River population. Id. These populations are precariously small and occupy a fraction of their historical range. See id. at 49,387-88.

In 2010, FWS determined that present and future threats to the Missouri River Arctic Grayling warranted listing under the ESA, but that listing was precluded by higher priority listing actions. 75 Fed. Reg. at 54,742. In support of this determination, FWS explained that Missouri River grayling were threatened by low abundance, inadequate regulatory mechanisms, and stream dewatering that could be exacerbated by climate change. See id.

On August 20, 2014, FWS reversed its 2010 Finding. See 79 Fed. Reg. at 49,384. The 2014 Finding largely relied on the Big Hole River Candidate Conservation Agreement with Assurances (“CCAA”), which identifies certain voluntary actions by private landowners that, if implemented, would improve habitat conditions for grayling in the Big Hole River. See id. at 49,400-04, 49,407-08. The 2014 Finding also dismissed previously acknowledged threats to the small Big Hole fluvial population based on the reintroduction of the Ruby River population, which recently began to take hold after Montana biologists completed efforts to supplement it in 2008, see id. at 49,419, AGPF2597, but which still has a low number of effective breeders and total estimated population of just 54 to 179 fish, see 79 Fed. Reg. at 49,398, 49,408. The 2014 Finding further dismissed low

genetic diversity, habitat degradation, and climate change as current and future threats to the species. See id. at 49,396-99, 49,403, 49,406, 49,418-19.

## **ARGUMENT**

The 2014 Finding was arbitrary and defied the best available science, in violation of the ESA.

### **I. STANDARD OF REVIEW**

Plaintiffs bring this case under the ESA’s citizen-suit provision, 16 U.S.C. § 1540(g), and the Administrative Procedure Act, 5 U.S.C. § 706. The Court must determine “whether there is a rational connection between the facts found and the choices made by the FWS and whether it has committed a clear error of judgment.” Or. Nat. Res. Council v. Allen, 476 F.3d 1031, 1036 (9th Cir. 2007) (citation omitted). Even where an agency with “technical expertise” acts “within its area of competence,” the Court “need not defer to the agency when the agency’s decision is without substantial basis in fact.” Ariz. Cattle Growers’ Ass’n v. Salazar, 606 F.3d 1160, 1163 (9th Cir. 2010). In particular, under the ESA, “failure by the agency to utilize the best available science is arbitrary and capricious.” Consol. Delta Smelt Cases, 717 F. Supp. 2d 1021, 1060 (E.D. Cal. 2010). Further, an agency must provide a “reasoned explanation” for its reliance on factual findings that contradict earlier findings by the agency. F.C.C. v. Fox Television Stations, Inc., 556 U.S. 502, 515 (2009).

In its 2014 Finding, FWS violated these requirements for rational decisionmaking.

**II. FWS FAILED TO RATIONALLY EVALUATE WHETHER ARCTIC GRAYLING ARE THREATENED BY LOW STREAM FLOWS AND HIGH STREAM TEMPERATURES**

While FWS acknowledged that the greatest threats to grayling in the Big Hole River are low stream flows and correspondingly high stream temperatures, see 79 Fed Reg. at 49,403, 49,418, FWS arbitrarily determined that these twin threats do not warrant listing, see id. at 49,405, 49,418-19. Grayling require high quality habitat, including “clear, cold water,” to fulfill their life histories and maintain a healthy population. Id. at 49,391. Water temperatures above 68 degrees Fahrenheit are “unsuitable” for grayling, id., while temperatures above 77 degrees can cause widespread “fish kills,” id. at 49,403. In the Big Hole River, low flows correlate with high water temperatures. Id. Thus, dewatering is a significant threat to grayling. As a result of extensive water withdrawals for irrigation, “[s]ummer water temperatures consistently exceed 21°C (70°F) in the mainstem of Big Hole River.” Id. Climate change threatens to worsen habitat conditions. See id. at 49,405-06.

FWS arbitrarily concluded that these threats to Arctic grayling, particularly in the Big Hole River, do not warrant listing.

**A. FWS Arbitrarily Dismissed the Inadequacy of Regulatory Mechanisms to Counter the Threat of Low Stream Flows and High Stream Temperatures**

The 2014 Finding failed to rationally evaluate the adequacy of “existing regulatory mechanisms” to prevent acknowledged threats to fluvial Arctic grayling from endangering the species. 16 U.S.C. § 1533(a)(1)(D). In 2010, FWS found that “[e]specially in the Big Hole River, dewatering from irrigation represents a past and present threat to Arctic grayling.” 75 Fed. Reg. at 54,728. At that time, FWS acknowledged that “existing regulatory mechanisms that deal with land and water management have not demonstrably reduced threats to Arctic grayling in the past, and we have no basis to conclude that they are adequate now or will be in the future.” Id. at 54,738. Thus, the 2010 finding identified inadequate regulatory mechanisms as a threat to the DPS. Id.

In 2014, FWS arbitrarily reversed this finding. FWS did not identify any new regulations that reduce the threat to grayling due to low stream flows. The only regulatory mechanism FWS identified that addresses stream flows—the Montana Water Use Act—exacerbates rather than ameliorates the threats because of the over-allocation of water rights in the upper Missouri River basin. See 79 Fed. Reg. at 49,417 (“overallocation of water … is of general concern”). Further, FWS acknowledged that other regulations that may improve grayling habitat on public lands have limited benefit in the Big Hole River, which largely adjoins

private lands. Id. Nonetheless, FWS concluded that those regulations “in concert with other existing conservation efforts (e.g., Big Hole CCAA) are adequate to sustain and improve habitat conditions for Arctic grayling.” Id.; see also id. at 49,404 (discussing CCAA), 49,407-08 (“informal flow agreements” and “voluntary actions to conserve water” under drought management plan).

FWS’s 2014 regulatory mechanisms finding was arbitrary. At the outset, it was arbitrary for FWS to rely on regulations that it concedes ‘have limited ability to protect [the Big Hole River] population,’ id. at 49,417, to do just that. FWS’s further reliance on future voluntary actions by landowners to forego withdrawing Big Hole River water under the CCAA also was arbitrary. Such voluntary conservation measures are not “regulatory mechanisms,” which FWS conceded are comprised of “[o]nly existing ordinances, regulations, and laws.” Id. at 49,414. Lacking any binding commitment for their implementation, these measures are insufficient to eliminate acknowledged threats because they “are necessarily speculative.” Or. Nat. Res. Council v. Daley, 6 F. Supp. 2d 1139, 1155 (D. Or. 1998) (holding “voluntary or future conservation efforts by a state should be given no weight in the listing decision”); see also Ctr. for Biological Diversity v. Morgenweck, 351 F. Supp. 2d 1137, 1141 (D. Colo. 2004) (FWS improperly relied on a non-binding conservation agreement with states to reject ESA listing of fish species); Defenders of Wildlife v. Jewell, 68 F. Supp. 3d 193, 209 (D.D.C. 2014)

(FWS arbitrarily relied exclusively on unenforceable statements of intent to meet a necessary condition for delisting wolves).

Indeed, FWS eliminated the one meaningful incentive landowners had to voluntarily forego irrigation withdrawals from the Big Hole River. The CCAA operates by enticing landowners to take voluntary conservation actions in exchange for assurances that they will not be subject to additional regulatory requirements to protect the species were it to be listed. See AGPF004617 (CCAA). Now that FWS has effectively lifted the threat of ESA listing, the motivation to implement such voluntary measures is gone. FWS failed to address this point.

Thus, FWS's reliance on these voluntary measures to conclude that Arctic grayling are not threatened by inadequate regulatory mechanisms was arbitrary.<sup>1</sup>

**B. FWS Arbitrarily Concluded That Arctic Grayling Are Not at Risk from Low Stream Flows and High Temperatures**

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<sup>1</sup> FWS developed a formal policy in 2003 to evaluate whether a “conservation effort provides certainty of implementation and effectiveness and, thereby, improves the status … of the species such that it does not meet the Act’s definition of a threatened or endangered species.” Policy for Evaluation of Conservation Efforts When Making Listing Decisions, 68 Fed. Reg. 15,100, 15,101 (Mar. 28, 2003) (“PECE”). FWS did not apply that policy here. As discussed, however, the CCAA has not eliminated threats to Arctic grayling in the Big Hole. Had FWS evaluated the CCAA under the PECE, both its certainty and effectiveness would fall short of PECE standards. See AGSR009527-34 (evaluating CCAA compliance with PECE).

Even if FWS rationally concluded that landowners will in the future voluntarily restrict their water use under the CCAA, which it did not, the measures described in the CCAA are not sufficient to ameliorate the threats to grayling caused by low flows in the Big Hole River. To the contrary, the best available science demonstrates significant and increasing threats to these essential elements of grayling habitat.

1. The CCAA Does Not Ensure Adequate Grayling Habitat

Even if it is implemented, the CCAA is insufficient to mitigate dewatering threats in the Big Hole River, home to the primary remaining fluvial population. First, even if the CCAA's flow targets consistently are met, they are inadequate. While segments of the Big Hole River have met the CCAA's goal of achieving instream flow targets 75 percent of the time, 79 Fed. Reg. at 49,404, this leaves insufficient flows one in every four days. Moreover, the targets are operative only in years of average or greater snowpack. Id. The CCAA identifies no targets at all in years of below-average snowpack—as occurred in 2010, 2012, and 2013—even though these are the years when dewatering and high water temperatures are most likely to impair grayling. See id. at 49,418 (discussing adverse impacts of drought and likelihood drought duration and severity will increase in future); AGSR189-90 (snowpack). Second, FWS conceded that “many other factors influence instream

flows in the Big Hole River that are outside the control of landowners (e.g., snowpack, precipitation).” Id. at 49,404.

Accordingly, Big Hole River grayling continue to face high water temperatures notwithstanding the CCAA. Stream temperature monitoring in 2012 and 2013 revealed that summer water temperatures “consistently exceed” 70 degrees—above the suitability threshold—with some monitoring stations recording temperatures above 77 degrees—thus exceeding the upper lethal temperature at which “fish kills” may occur. See id. at 49,403.

FWS minimized this threat by citing a 2009 study concluding that grayling seek refuge in tributaries of the Big Hole when summer water temperatures in the mainstem rise too high. See id. (citing Vatland et al. 2009). However, FWS was aware of this study in 2010, see 75 Fed. Reg. at 54,731-32 (citing Vatland et al. 2009), and still concluded that dewatering and high water temperatures were a threat, id. at 54,728 (“water temperatures that are high enough to cause mortality of fish in the Big Hole River represent a clear threat to Arctic grayling because of the potential to directly and quickly reduce the size of the population”). FWS failed to explain why a different conclusion was warranted in 2014. Furthermore, stream temperature monitoring documented these high temperatures in both the Big Hole mainstem and most monitored tributaries, undermining the assurance of thermal refugia in tributary areas. See AGPF2588, AGPF2845.

The CCAA is also inadequate because it does not address threats outside the Big Hole River. In the Madison River and the Centennial Valley, summer water temperatures can exceed 70 degrees Fahrenheit. See 79 Fed. Reg. at 49,404. Contrary to its 2010 conclusion that these “high water temperatures are likely to continue to affect grayling in the Madison River and Red Rocks Lakes,” 75 Fed. Reg. at 54,728, the 2014 Finding dismissed this threat, again based on the purported ability of grayling in these systems to use “cooler tributaries and spring sources as thermal refugia,” 79 Fed. Reg. at 49,404-05 (citing Jaeger 2014b, pers. comm., and Mogen 1996). FWS’s support for this changed conclusion was an email from a state fisheries biologist addressing the potential existence of “some cold water refugia” in the upper Red Rock Lake area, AGSR482, and a report that two young grayling were found “on one occasion” in 1994 in a Centennial Valley tributary “possibly providing thermal refugia,” AGL1421. Neither supports FWS’s reversal of its 2010 Finding. Indeed, the biologist’s email cautions that interpretation of the data “is not strai[gh]t forward,” and could support finding that warm lake temperatures threaten grayling. AGSR482. FWS’s reliance on such sparse and inconclusive data to dismiss the threat of high water temperatures in the Madison River and the Centennial Valley is arbitrary. See Tucson Herpetological Soc’y v. Salazar, 566 F.3d 870, 879 (9th Cir. 2009) (finding that FWS arbitrarily inferred that a population of lizards was viable based on a single study whose

author warned that the results “should be viewed with caution as they were based on sparse data”).

## 2. FWS Arbitrarily Evaluated Climate-Change Impacts

FWS’s failure to adequately address the current threat to Arctic grayling caused by low flows and high stream temperatures was made worse by FWS’s dismissal of the additive effects of climate change. The uncontroverted scientific evidence uniformly identifies climate change as a significant threat to cold-water fish such as the grayling through its effect on stream flows, stream temperatures, and water management. See, e.g., AGL47-54 (Null et al. 2013), AGL113-118 (Isaak et al. 2012); AGL145-151 (Kaushal et al. 2010); AGSR9578-82 (Luce & Holden 2009); AGSR955-57 (Luce et al., 2013). Despite recognizing in 2010 that climate-change threats could compound other stressors such as habitat degradation, stream dewatering, drought, and predation, see 75 Fed. Reg. at 54,739-40, FWS’s 2014 Finding concluded climate change was not a threat based on the grayling’s ability to increase their “abundance and distribution despite a warming climate” and FWS’s expectation that riparian restoration may mitigate climate-change effects, 79 Fed. Reg. at 49,407.

FWS’s 2014 Finding arbitrarily confronted the effects of climate change with guesswork instead of science. FWS rejected a climate-change threat based on increased grayling abundance “[s]ince the late 2000s” while stream temperatures

warmed, *id.* at 49,406, apparently assuming the future effects of climate change will match past trends. In 2010, however, FWS observed that climate-change impacts “will continue and likely increase into the foreseeable future.” 75 Fed. Reg. at 54,740 (emphasis added); see also AGL114 (warming “during the next several decades will occur at rates 50–100% faster than in recent decades”). Thus, regardless of the impact of past warming, FWS should have analyzed whether accelerated warming in the future may cause “increased frequency of high water temperatures that may be above the physiological limits for survival or optimal growth”—one consequence of drought that FWS previously acknowledged would be exacerbated by climate change. 75 Fed. Reg. at 54,738-39. FWS’s speculation that grayling numbers may continue to increase despite warming temperatures also ignores the fact that “observed increases in abundance and distribution may be partially attributable to” introduction by Montana Fish, Wildlife and Parks (“FWP”) of thousands of fry in the Big Hole and Centennial Valley. 79 Fed. Reg. at 49,399. FWS cited no assurance that such introductions will continue to bolster population numbers or that populations may not have otherwise decreased as temperatures rose. Moreover, as discussed below, FWS’s determination that grayling numbers increased in the Big Hole is contradicted by record evidence. See infra, § III.A.

FWS further touts the mitigating impact of riparian restoration projects on stream temperature increases. See 79 Fed. Reg. at 49,407. However, even before the full impact of climate change has been realized, stream temperatures in both the Big Hole and Centennial Valley are frequently above habitat suitability thresholds despite restoration projects and the presence of intact riparian areas. Id. at 49,403-04. Where riparian areas do not currently offer adequate mitigation of factors causing high stream temperatures, FWS offered no basis for its assumption that the future mitigating effect of these same riparian areas will be adequate when the impacts of climate change are worse.

FWS's 2014 assessment of the cumulative impacts of dewatering and climate change also irrationally deferred to scientific "uncertainty about how different temperature and precipitation scenarios could affect water availability" to avoid making any determination about the combined impact of these two threats. See id. at 49,419. However, as the Ninth Circuit has held in the ESA listing context, "[i]t is not enough for the Service to simply invoke 'scientific uncertainty' to justify its action." Greater Yellowstone Coal. v. Servheen, 665 F.3d 1015, 1028 (9th Cir. 2011). Instead, FWS "must rationally explain why the uncertainty" justifies its decision, id., particularly in light of ample record evidence that climate change harms cold-water fish species such as Arctic grayling. Further, FWS's conclusion once again contradicts the 2010 Finding. There, FWS acknowledged

scientific uncertainty, but still concluded that “the severity and scope of key threats (habitat degradation and fragmentation, stream dewatering and nonnative trout) [will] increase in the foreseeable future because of climate change effects that are already measurable.” 75 Fed. Reg. at 54,740. FWS offered no rational explanation for reversing this determination in the 2014 Finding.

### **III. FWS ARBITRARILY CONCLUDED THAT ARCTIC GRAYLING ARE NOT THREATENED BY SMALL POPULATION SIZE**

In addition to habitat threats, the isolated subpopulations of Arctic grayling in the upper Missouri River suffer from chronically low population numbers. See id. at 54,723-25. Recognizing this, FWS’s 2010 Finding concluded that four of the five native grayling populations “appear to be at risk of extirpation in the foreseeable future … simply because they are at low abundance and cannot receive demographic support from other native populations.” Id. at 54,743. In 2014, FWS arbitrarily reversed its position and ignored the best available science in concluding that small population sizes will not threaten or endanger grayling in the foreseeable future. See 16 U.S.C. § 1533(b)(1)(A) (best available science requirement); Fox Television Stations, Inc., 556 U.S. at 515 (requiring “reasoned explanation” for agency reversal of factual findings).

#### **A. FWS’s 2014 Population Findings Were Arbitrary**

FWS’s 2014 Finding irrationally reversed its 2010 Finding in concluding that the Arctic grayling is not threatened by the small size of its subpopulations.

FWS's reversal relied entirely on purported increases in Arctic grayling abundance among most of the subpopulations in the DPS—including the Big Hole population—calculated by extrapolating the “estimated effective population size”<sup>2</sup> from genetic data. See 79 Fed. Reg. at 49,398, 49,418-19. FWS failed, however, to address contrary population data.

First, FWS failed to confront the results of a comprehensive genetic study conducted by the FWS Abernathy Fish Technology Center (DeHaan et al. 2014), which contradicts FWS's conclusion that the Big Hole River population is increasing. DeHann et al. 2014 concluded that “the effective number of breeders declined from the late 1980s to the present” based on data collected through 2012. See AGPF2494-2495, 2504-05, 2517 (emphasis added). FWS acknowledged DeHann in part, noting the study's conclusion that the population decreased through the mid-2000s. 79 Fed. Reg. at 49,406. But FWS ignored the study's conclusion that the population continued to decline through 2012, instead labeling the population trend in the Big Hole River as “increasing” based on unpublished data from another FWS employee. See id. at 49,398, 49,406. While FWS may rely on the opinions of its experts, it “cannot ignore available biological information.” Conner v. Burford, 848 F.2d 1441, 1454 (9th Cir.1988); c.f. San

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<sup>2</sup> “Effective population size” means the portion of the population that actually breeds and contributes genetic material to sustaining the species. See AGPF2493.

Luis & Delta-Mendota Water Auth. v. Locke, 776 F.3d 971, 995 (9th Cir. 2014)

(“An agency complies with the best available science standard so long as it does not ignore available studies, even if it disagrees with or discredits them.”). Here, FWS’s failure even to acknowledge, let alone refute, evidence that the Big Hole River population declined in recent years was arbitrary.

Second, FWS did not adequately address FWP’s monitoring data, which also do not reflect the touted population increases. FWS relied on FWP data from 2006 to 2012 to demonstrate an increase, 79 Fed. Reg. at 49,401 (citing MFWP2013a (AGPF2878-79)), but excluded 2013 data showing a significant decrease in grayling numbers for both the Big Hole and Ruby Rivers from the prior year. See AGPF2878-79; compare AGPF2596, AGPF2603 with AGPF2855, AGPF2863; see also AGSAW00179 (Ruby River population decrease). When viewed as a whole, the population data for the Big Hole and Ruby Rivers between 2008 and 2013 shows, at best, a fluctuating population and, at worst, a population in decline.

FWS’s only acknowledgement of the 2013 monitoring data was a footnote stating that abundance estimates from 2013 “were lower” than those reported for 2012 “likely due to unusually high flows … that likely decreased capture efficiency.” See 79 Fed. Reg. at 49,401. However, the underlying FWP report does not support FWS’s decision to disregard the 2013 data on these grounds. That report blamed high flows in Big Hole River reaches for lower capture rates

compared with tributary reaches. See AGPF2596. Nothing in the report discounted the 2013 population estimates as a whole compared with previous years. See id. Further, the record provided no basis for dismissing the documented decrease in the Ruby River population, which FWS failed entirely to address. See 79 Fed. Reg. at 49,398, 49,408. In concluding that the Big Hole and Ruby River populations are increasing based on incomplete and nonrepresentative data, FWS arbitrarily ignored the best available science. 16 U.S.C. § 1533(b)(1)(A).

**B. FWS Irrationally Concluded that Low Population Numbers Are Not a Threat**

1. FWS Failed to Consider the Impact of Low Population Numbers on Long-Term Genetic Viability

Even if FWS rationally determined that Arctic grayling populations are increasing—and it did not—FWS arbitrarily failed to analyze whether grayling numbers are sufficient to support long-term genetic diversity. In dismissing long-term genetic threats, FWS reasoned that “other processes, such as habitat degradation, have a more immediate and greater impact on species persistence.” 79 Fed. Reg. at 49,419. While Plaintiffs certainly agree that habitat degradation poses immediate threats to grayling, the likelihood of short-term impacts does not excuse FWS from considering long-term impacts to the species. This is especially true where, as here, FWS ultimately concluded that those short-term impacts were not threats to grayling. See id. at 49,409. Moreover, FWS’s conclusion is contrary

to the very science on which it relies, which advocates for considering both the short- and long-term genetic viability of a species. See AGL100 (Jamieson and Allendorf 2012) (“the need to maintain long-term genetic diversity for evolutionary potential is an important component of conservation programs”); AGL237-39 (Palstra and Ruzzante 2008) (“considering genetic stochasticity should remain an important focus in the conservation of biodiversity”).

FWS’s failure to consider long-term genetic viability is further undermined by its 2010 conclusion that “[l]oss of genetic variation relative to the historical condition … represent[ed] a threat to Arctic grayling in the foreseeable future.”<sup>3</sup> 75 Fed. Reg. at 54,741. Significantly, this conclusion was not based on short-term threats from inbreeding but on “long-term adaptive potential.” Id. FWS arbitrarily failed to explain why data that established a threat in 2010 was not worth considering in 2014. See Fox Television Stations, Inc., 556 U.S. at 515 (“It would be arbitrary or capricious to ignore such matters.”).

To the extent FWS addressed long-term genetic diversity, it deferred to scientific uncertainty, stating only that there is “considerable debate about what effective population size is adequate.” 79 Fed. Reg. at 49,418. However, FWS was required to rationally explain why this uncertainty counseled in favor of its

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<sup>3</sup> FWS did not define “foreseeable future” in its 2014 Finding, but its 2010 Finding defines the foreseeable future as 30 years based on its population viability analysis. See 75 Fed. Reg. at 54,725.

decision not to list the species, Greater Yellowstone Coal., 665 F.3d at 1028, which it did not do.

Had FWS analyzed this threat, it would have found that fluvial grayling populations are not sufficient to ensure genetic diversity in the foreseeable future. In general, the best available science establishes that effective population sizes around 500 are required to maintain long-term genetic diversity for isolated populations. See AGL95-100; AGL197-98, 200. Here, FWS estimated the effective population sizes for fluvial Arctic grayling at 12.5 in the Ruby River and 371 in the Big Hole River, 79 Fed. Reg. at 49,398, well-below the 500 effective-population standard to ensure long-term genetic diversity. FWS's failure to consider this threat was arbitrary.

2. FWS Irrationally Concluded That Environmental Disturbances Will Not Threaten Grayling, Despite Their Small Population Size

The Arctic grayling's low abundance also makes it vulnerable to stochastic (random) environmental disturbances. See 79 Fed. Reg. at 49,418 ("A principle of conservation biology is that the presence of larger and more productive (resilient) populations can reduce overall extinction risk."). FWS provided two reasons to support its conclusion that environmental disturbances nonetheless do not threaten Arctic grayling: population redundancy and separation. See id. at 49,149. Neither rationally supports FWS's conclusion that no threats exist.

First, FWS irrationally relied on the incipient Ruby River population to provide redundancy necessary to minimize the risk of environmental disturbances to native fluvial population in the Big Hole River. “Conservation of life-history diversity is important to the persistence of species confronted by habitat change and environmental perturbations.” Id. at 49,419. Accordingly, in 2010, FWS concluded that “the lack of additional fluvial populations [beyond the Big Hole] represents a current threat to the upper Missouri River DPS.” 75 Fed. Reg. at 54,741. In 2014, FWS found this concern to be resolved because a purported increase in the number of breeding individuals in the Ruby River population over the last three years was sufficient to provide “a viable replicate of the fluvial ecotype.” 79 Fed. Reg. at 49,419.

As an initial matter, FWS’s conclusion is premature by FWS’s own standard. In 2010, FWS stated that “at least five to ten more years of monitoring is needed” to determine viability of the Ruby River population. 75 Fed. Reg. at 54,743 (emphasis added). Yet just four years later, and without any explanation for its sudden rush to judgment, FWS claimed “mission accomplished.” See 79 Fed. Reg. at 49,398, 49,408. Moreover, FWS’s touted success in the Ruby River is undermined by state monitoring data showing a population decrease from 2012 to 2013. See AGPF2863 (Cayer and McCullough 2012) (106 grayling in 2012); AGPF2603 (Cayer and McCullough 2013) (37 grayling in 2013).

Further, regardless of its trajectory, the fledgling Ruby River population with an effective population size of just 12.5, 79 Fed. Reg. at 49,398, cannot provide sufficient redundancy for the Big Hole River. FWS previously recognized that “smaller populations” like the Ruby River “are more likely to go extinct even if they are stable because they are already close to the extinction threshold, and random environmental events can drive their abundance below that threshold,” 75 Fed. Reg. at 54,741; see also AGL74 (Palstra and Ruzzante 2012). In light of the uncertain persistence of this still-small population, FWS’s reliance on Arctic grayling in the Ruby River to provide redundancy of the fluvial life form that FWS deemed essential was unlawful. See Greater Yellowstone Coal., 665 F.3d at 1028 (“Having determined what is ‘necessary,’ the Service cannot reasonably rely on something less to be enough.”).<sup>4</sup>

Second, FWS relied on the geographic separation of the remaining upper Missouri River grayling populations from one another to address the threat of potential environmental disturbances. See 79 Fed. Reg. at 49,419. But this separation cannot justify the agency’s change of position when the same separation was evident in 2010. See 75 Fed. Reg. at 54,741; see Defenders of Wildlife v.

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<sup>4</sup> Even assuming, for the sake of argument, that FWS correctly relied on the Ruby River population to provide essential redundancy—which it did not—then FWS should have evaluated whether the demographically impoverished status of this population renders the Arctic grayling threatened over “a significant portion of its range” in the Ruby River. 16 U.S.C. § 1532(6), (20). FWS failed to do so.

Hall, 565 F. Supp. 2d 1160, 1163 (D. Mont. 2008) (finding plaintiffs likely to succeed on their ESA listing claim where FWS “flip-flopped” its prior position that was based on the same information as the challenged decision); Fox Television Stations, Inc., 556 U.S. at 515 (“reasoned explanation” required for agency’s changed position).

3. FWS Irrationally Reversed its 2010 Population Viability Analysis

FWS’s 2014 conclusion that grayling are not threatened by low population numbers is further undermined by FWS’s failure to consider its 2010 population viability analysis (“PVA”) or to explain on the record why the 2010 PVA is no longer relevant. FWS’s 2010 PVA “gauge[d] the relative risk to the different native populations of Arctic grayling in the upper Missouri River basin.” Dkt. No. 35-1, at SUPP1. This analysis revealed that “four of the five extant populations in the upper Missouri River DPS of Arctic grayling are at moderate (at least 13 percent) to high risk (more than 50 percent) of extinction from random environmental variation.” 75 Fed. Reg. at 54,741; Dkt. No. 35-1, at SUPP3-6. In reaching the opposite conclusion on this key issue just four years later, 79 Fed. Reg. at 49,419, the 2014 Finding nowhere mentions the 2010 PVA and FWS admits that it did not consider it, see Dkt. No. 22, at 8. FWS’s failure to consider the 2010 PVA or explain why it is irrelevant once again constituted an arbitrary reversal of its prior finding. See Fox Television Stations, Inc., 556 U.S. at 515.

Because FWS failed to justify its population estimates in light of conflicting data, failed to employ the best available science with respect to long-term genetic threats, and failed to rationally explain its reversal of its contrary conclusion in 2010, FWS's conclusion that the Arctic grayling's extremely small population size does not warrant ESA listing was arbitrary and unlawful. See 16 U.S.C. § 1533(a)(1)(E), (b)(1)(A).

#### **IV. FWS FAILED TO EVALUATE WHETHER THE ARCTIC GRAYLING IS IMPERILED IN A SIGNIFICANT PORTION OF ITS RANGE**

FWS's errors in evaluating threats to the Arctic grayling in habitat where it still persists were compounded by FWS's treatment of habitat from which the grayling has been extirpated. FWS's failure to evaluate threats over the 90 percent of the Arctic grayling's unoccupied, historical range in the Upper Missouri River basin contradicted the plain language of the ESA, which requires FWS to determine whether the Arctic grayling is threatened or endangered "throughout all or a significant portion of its range." 16 U.S.C. § 1532(6), (20) (definitions of "endangered" and "threatened" species) (emphasis added).

In addressing range curtailment, the 2014 Finding stated only that "despite fragmentation, sufficient habitat remains intact and is currently supporting multiple, viable, fluvial and adfluvial Arctic grayling populations." 79 Fed. Reg. at 49,409. FWS failed entirely to evaluate whether the Arctic grayling is imperiled in

areas the species once occupied, including at least 161 miles of currently unoccupied, historical habitat within the Big Hole River that remains “suitable” for grayling, not to mention other areas for which habitat suitability was not discussed. Id. at 49,407; cf. Tucson Herpetological Soc'y v. Salazar, 566 F.3d 870, 877 (9th Cir. 2009) (finding that FWS satisfied its duty to consider historical range where agency determined, among other things, that the lost habitat was converted and “generally not recoverable”).

The Ninth Circuit has rejected the Service’s exclusive reliance on the persistence of a species within its current range as the basis for dismissing the significance of lost historical range. See Defenders of Wildlife v. Norton, 258 F.3d 1136 (9th Cir. 2001). In Defenders, the court observed that FWS’s position would impermissibly equate extinction throughout “a significant portion of its range” with the threat of extinction throughout all its range, which impermissibly renders the “significant portion” language superfluous. Id. at 1141-42. As the Ninth Circuit subsequently affirmed, “[i]t is insufficient, under Defenders, to point to one area or class of areas where … populations persist to support a finding that threats to the species elsewhere are not significant.” Tucson Herpetological Soc'y, 566 F.3d at 877.

The Service attempted to address this Ninth Circuit authority by adopting a “Policy on Interpretation of the Phrase ‘Significant Portion of Its Range’ in the

Endangered Species Act’s Definitions of ‘Endangered Species’ and ‘Threatened Species.’” 79 Fed. Reg. 37,578 (July 1, 2014) (“SPR Policy”). The SPR Policy defines range to mean only currently occupied, rather than historical, range. Id. at 37,583. FWS claimed that Congress’s intention to focus on imperilment in a species’ current range can be inferred from the ESA’s present-tense language defining an “endangered species” as one that “is in danger of extinction.” Id. (citing 16 U.S.C. § 1532(6)). Thus, under the SPR Policy, the sole manner in which the Service evaluates historical range in listing decisions is to consider “the effects that loss of historical range may have on the current and future viability of the species.” Id.

FWS’s treatment of historical range under the SPR policy cannot be sustained because it leads to an impermissible construction of the statute, Chevron U.S.A. Inc. v. Nat. Res. Defense Council, 467 U.S. 837, 844 (1984), and disregards “the broader context of the statute as a whole,” Util. Air Regulatory Grp. v. E.P.A., 134 S. Ct. 2427, 2442 (2014) (quotation and citation omitted). First, as the Ninth Circuit already held in Defenders, by deeming historical range categorically insignificant, the Service fails to “explain [its] conclusion that the area in which the species can no longer live is not a ‘significant portion of its range.’” Defenders of Wildlife, 258 F.3d at 1145. FWS’s claim in the SPR Policy that it satisfies Defenders by considering whether a species’ lost range renders it endangered

within its current range is insufficient because, as in Defenders, it impermissibly equates imperilment throughout the species' range with imperilment in any portion. Id. at 1142. Moreover, Congress has specified in a related provision of the ESA requiring documentation of geographical endangerment that “[t]he term ‘range’ is used in the general sense, and refers to the historical range of the species.” H.R. Rep. 95-1625, 18 (1978), reprinted in 1978 U.S.C.C.A.N. 9,453, 9,468 (discussing requirement in 16 U.S.C. § 1533(c)(1) to publish list of endangered and threatened species that “[s]pecifies] with respect to each such species over what portion of its range it is endangered or threatened”).

Second, FWS’s approach contradicts “[t]he ultimate goal of the Endangered Species Act,” which “is the conservation of the ecosystem on which all species, whether endangered or not, depend for survival.” Id. at 16, 1978 U.S.C.C.A.N. at 9,466; see also 16 U.S.C. § 1531(b) (purpose of ESA is “to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved”). Rather than promote ecosystem conservation, the SPR Policy condones the disappearance of species and their habitat over vast quantities of their native landscapes so long as some remnant of the species is preserved. Such an interpretation contrary to the ESA’s purpose cannot be sustained.

Here, because FWS failed to consider the significance of historical but no longer occupied habitat, it violated its mandate to rationally evaluate the species' imperilment throughout "a significant portion of its range." 16 U.S.C. § 1532(6), (20).

## **CONCLUSION**

For the foregoing reasons, Plaintiffs respectfully request this Court grant their motion for summary judgment.

Respectfully submitted this 19th day of February, 2016.

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**CERTIFICATE OF COMPLIANCE**

I hereby certify that this Memorandum in Support of Plaintiffs' Motion for Summary Judgment contains 6,491 words in compliance with Civil Rule 7.1(d)(2)(A).

/s/ Jenny K. Harbine  
Jenny K. Harbine

**CERTIFICATE OF SERVICE**

I hereby certify that a copy of the foregoing was today served via the Court's CM/ECF system on all counsel of record.

/s/Jenny K. Harbine  
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